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SYNTHESIS OF NOVEL KETO AND EXOMETHYLENE PYRANONUCLEOSIDES WITH ANTIVIRAL AND CYTOTOXIC ACTIVITY

ABSTRACT

The present thesis was focused in the synthesis of new series of modified exomethylene nucleosides with six-membered carbohydrate moieties as well as their biological evaluation as a new class of antivirus and anticancer agents.

Based on the interesting biological properties of unsaturated ketonucleosides and deoxy-pyranonucleosides and considering that the furanonucleosides containing exomethylene group in the sugar mojety increases the anticancer and the antiviral activity, in the present work, the synthesis of new series of saturated and unsaturated 2′ or 3′ or 4′ exomethylene pyranonucleoside analogues, was described.

Therefore, the synthesis of a new class of nucleoside analogues possessing exomethylene group in the 4′-position, a double bond in the 2′,3′-position of the mannose sugar moiety and uracil as heterocyclic base, followed the synthesis of an other new class of nucleosides possessing exomethylene group in the 2′-position, a double bond in the 3′,4′-position of the galactose sugar moiety and thymine as heterocyclic base. Afterwards was described the process for the synthesis of a novel class of lyxopyranose nucleoside analogues, possessing exomethylene group in the 4′-position, deoxy in the 5′-position, a double bond in the 2′,3′-position of the sugar moiety, and thymine or uracil as heterocyclic bases. Followed the description of synthesis of an other new class of arabinopyranose nucleoside analogues possessing exomethylene group in the 2′-position, deoxy in the 5′-position, a double bond in the 3′,4′-positions of the sugar moiety and thymine or uracil or 5-fluorouracil or N^4-benzoylcytosine or a cytosine as heterocyclic bases. Finally, a new class of nucleosides, possessing a keto group in the 2′-position, exomethylene group in the 3′-position of the sugar moiety and thymine or uracil or 5-fluorouracil as heterocyclic bases.

In the present thesis are mentioned also the antiviral, anticancer and antioxidant studies that were realized on the new compounds and they elect their important biological properties.